

CLAIMS

- 5 1. Product of the biochip type, comprising a flat solid support having
a surface covered with a metal capable of coordination bonding
with a phosphate group, at least one biopolymer carrying a free
phosphate group $\text{OP}(\text{O})(\text{OH})_2$ being immobilized on said surface
by ionocovalent bonding between the free phosphate group of
10 the polymer and the metal.
2. Product according to claim 1, wherein the biopolymer is a nucleic
acid phosphorylated in the 5' position.
- 15 3. Product according to claim 1, wherein the biopolymer is a nucleic
acid phosphorylated in the 3' position.
4. Product according to either claim 2 or claim 3, characterized in
that the nucleic acid has a polyguanine (polyG) spacer group
20 between the body of the nucleic acid and the phosphate group.
5. Product according to claim 1, wherein the biopolymer is a
phosphorylated protein.
- 25 6. Product according to claim 1, wherein the biopolymer is a
phosphorylated oligo- or poly-saccharide.
7. Product according to any one of claims 1 to 6, wherein the metal
is bound to the surface of the support by way of a spacer
30 molecule.

8. Product according to claim 7, wherein the spacer molecule comprises a fatty acid chain carrying a phosphonate group to which the metal binds by ionocovalent bonding.
- 5 9. Product according to any one of claims 1 to 8, wherein the metal is zirconium.
10. Product according to claim 8, wherein the spacer molecule is octadecylphosphonic acid and the metal is zirconium.
- 10 11. Product according to any one of claims 1 to 10, wherein the support is glass.
- 15 12. Product according to claim 1, comprising a sheet of glass having a surface covered with a monolayer of zirconium octadecylphosphonate, at least one nucleic acid carrying a phosphate group in the 5' position being immobilized on said surface by ionocovalent bonding between the phosphate group of the nucleic acid and the zirconium.
- 20 13. Method for making a product of the biochip type, as defined in any one of claims 1 to 12, comprising the immobilization of at least one biopolymer carrying a free phosphate group on a solid support having a surface covered with a metal capable of coordination bonding with a phosphate group, the biopolymer being immobilized on said surface by ionocovalent bonding between the free phosphate group of the polymer and the metal.
- 25 14. Method according to claim 13, also comprising a step of obtaining the biopolymer carrying a phosphate group.
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15. Method according to claim 14, wherein the polymer is a nucleic acid phosphorylated enzymatically in the 5' position.
- 5 16. Kit for the preparation of a product of the biochip type as defined in any one of claims 1 to 12, comprising the following elements:
- a solid support having a surface covered with a metal capable of coordination bonding with a phosphate group;
 - at least one biopolymer carrying a phosphate group;
 - optionally reagents.
- 10 17. Use of a product of the biochip type as defined in any one of claims 1 to 12, for the purpose of screening compounds capable of binding to the immobilized biopolymer.
- 15 18. Use of a product of the biochip type as defined in any one of claims 1 to 12, as an *in vitro* diagnostic tool.